TRENTON CHANNEL PROJECT
FINAL FIRESTONE STEEL SITE REPORT
DETROIT, MICHIGAN
MERA # 820012

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TABLE OF CONTENTS

Page No.

1.0 INTRODUCTION 1
- 1.1 Background 1
- 1.2 Physical Setting 1
- 1.3 Previous Investigation 1

2.0 SUMMARY OF NATURE & EXTENT OF CONTAMINATION 2

3.0 HISTORICAL INFORMATION 2
- 3.1 EDR Area Study Report 3
- 3.2 Sanborn Maps 4
- 3.3 Historical Air Photographs 5
- 3.4 Active Water Discharge Permits 5
- 3.5 Municipal Records 6
- 3.6 SEG Drive-Through 7

4.0 IDENTIFICATION OF PRPs 7

5.0 REMEDIAL ASSISTANCE PROGRAMS 11

6.0 TREATMENT OPTIONS, ESTIMATED SEDIMENT VOLUMES, & DREDGING PERMITS 12
- 6.1 Treatment Options 12
- 6.2 Sediment Volume and Mass Calculations 13
- 6.3 Dredging Permits 14

FIGURES

Figure 1 - Site Location Map
Figure 2a - Downstream of Firestone Steel Area (Upper and Mid) MDEQ Sediment Survey Results, 1993-1996
Figure 2b - Downstream of Firestone Steel Area (Lower) MDEQ Sediment Survey Results, 1993-1996
Figure 3a - Firestone Steel Area (Upper) MDEQ Sediment Survey Results, 1993-1996
Figure 3b - Firestone Steel Area (Mid and Lower) MDEQ Sediment Survey Results, 1993-1996
Figure 4 - Firestone Steel Area - Historic/Current Land Owners

TABLES

Table 1 - MDEQ Sediment Survey Results, 1993-1996

APPENDICES

Appendix A - EDR Area Study Report
Appendix B - Sanborn Maps
Appendix C - Historical Air Photographs
Appendix D - Municipal Records
Appendix E - Treatment Options
Appendix F - Volume and Mass Calculations
Appendix G - Dredging Permits

1.0 INTRODUCTION

Snell Environmental Group, Inc. (SEG) has been retained by the Michigan Department of Environmental Quality (MDEQ) as a Project Consultant for the Trenton Channel Project. Trenton Channel is a Level of Effort (LOE) project, under a contract administered by the MDEQ Environmental Response Division.

1.1 Background

The Trenton Channel has been identified in several previous studies as containing contaminated sediments. The MDEQ, with assistance from the United States Environmental Protection Agency (U.S. EPA) conducted sediment surveys of the Trenton Channel between 1993 and 1996 to further identify sediment depositional areas and to delineate contaminated sediment zones. **Results of the Trenton Channel Project Sediment Surveys 1993-1996** (MDEQ, July 1997) revealed that six major areas harbor the bulk of contamination, an estimated 483,000 cubic yards. Contaminants of concern (heavy metals, polynuclear aromatic hydrocarbons (PAHs), polychlorinated biphenyls (PCBs), and oil & grease) are primarily concentrated in depositional pockets of fine sand and silt along the Michigan mainland.

1.2 Physical Setting

The Trenton Channel is a nine mile stretch of the lower Detroit River that is bounded by the Michigan mainland on its western shore, and a series of islands of which Grosse Ile is the largest on the east (Figure 1). The Michigan mainland (nearshore) area of the Trenton Channel has been industrially developed with several steel mills, chemical facilities, coal-generated power plants and landfill/disposal sites. Approximately half of the facilities that once operated with discharges to the river have been either abandoned or demolished.

Land use along the nearshore Trenton Channel has recently tended toward recreation. There are also numerous private marinas, restaurants, apartment complexes and homes that line the channel.

1.3 Previous Investigation

The MDEQ report entitled, **Results of the Trenton Channel Project Sediment Surveys 1993-1996** (July 1997), listed six major depositional areas that harbor the bulk of contamination. A list of those sites classified by the MDEQ as "extremely contaminated" are as follows:

1. Firestone Steel Area
2. Allied Fuel Oil Slip
3. Elizabeth Park North Canal

4. Elizabeth Park South Canal-Inlet
5. Nicholson South Slip
6. Black Lagoon

SEG has been requested to compile pertinent information regarding Potentially Responsible Parties (PRP's) for the first four of the above six locations where contaminated sediments could be dredged and treated. This report specifically covers the Firestone Steel Area (a Priority 1 site).

2.0 SUMMARY OF NATURE & EXTENT OF CONTAMINATION

Firestone Steel, now operating as the warehouse of Materials Processing Corp (MPC), is a large depositional area of heavy metals, PAHs, PCBs, and oil & grease. The depositional area continuing downstream of Firestone Steel shows extreme contamination though less elevated, with the highest contamination found primarily below the surface as shown on Figures 2a and 2b.

Firestone Steel, besides having the highest concentration of Hg (16 mg/kg) of any Trenton Channel Project Site, also has high levels of total PCBs (18.4 mg/kg), and elevated levels of total PAHs (204 mg/kg) and oil & grease (21,000 mg/kg). However, PAHs appear concentrated at the downstream end of the site, whereas, PCBs and oil & grease appear concentrated at the mid to upstream end of the site. All of these impacts were located in surficial sediments as shown on Figures 3a and 3b. Results of the previous MDEQ investigation are summarized in Table 1.

3.0 HISTORICAL INFORMATION

As part of this site report, SEG compiled historical background information on the types and histories of facilities located on and adjacent to each site. Sources of information used for this purpose included:

- Searches of public environmental databases using Environmental Data Resources, Inc. (EDR) environmental assessment and reporting services (e.g., CERCLIS, LUST, RCRIS, etc.) for properties located approximately within a one mile on-shore radius of the site (not including US islands or Canada).
- Sanborn maps from EDR.
- Historical air photographs from Michigan State University.
- Active water discharge permits for nearby facilities from EDR.
- Municipal records review (e.g., tax maps, fire dept. records, etc.).
- SEG drive-through of the area (video and written notes).

3.1 EDR Area Study Report

EDR was contracted by SEG to search federal and state (regional, county, and local where available) government records to produce an EDR Area Study Report. The EDR Area Study is a map-based search that identifies potential or existing environmental liabilities associated with sites within a specific geographic area. The EDR Area Study Report for the Firestone Steel Site is provided in Appendix A.

Twenty-five databases were searched for available ('reasonably ascertainable') government records within the requested search area. Seventeen of the 25 researched databases contained government records on one or more sites. A total* of 31 listed sites were plotted on the EDR Radius Map report found within Appendix A. The EDR database search revealed the following:

Searched Database	Sites Found*
FINDS (Contains both facility info and 'pointers' to other sources of info that contain more detail)	24
UST (Registered underground storage tanks)	16
LUST (Reported leaking underground storage tank incidents)	14
RCRIS Sm. Quan. Gen. (Selective info on sites which generate, transport, store, treat &/or dispose of haz. waste)	13
State Haz. Waste (Priority sites planned for cleanup using state funds/state equivalent of Superfund)	06
CERC-NFRAP (Sites designated 'no further remedial action planned')	06
RCRIS Lg. Quan. Gen (Selective info on sites which generate, transport, store, treat &/or dispose of haz. waste)	06
TSCA (Identifies manufacturers and importers of chemical substances)	06
AST (Registered aboveground storage tanks)	03
ERNS (Reported releases of oil and hazardous substances)	03
RCRIS-TSD (Selective info on sites which transport, store, &/or dispose of hazardous waste)	02
CORRACTS (Identifies hazardous waste handlers)	02
TRIS (Identifies facilities which release toxic chemicals to the air, water and land in reportable quantities)	02
MLTS (List of sites which possess or use radioactive materials and subject to licensing requirements)	02
CERCLIS (Potentially hazardous waste sites which are either proposed to or on the NPL)	01
RAATS (Records of enforcement actions issued to major violators & includes admin. & civil actions brought by the EPA)	01
HMIRS (Hazardous material spill incidents reported to DOT)	01
NPL (National Priorities List/Superfund)	00
Delisted NPL (Sites may be deleted from the NPL where no further response is appropriate)	00
State Landfill (Inventory of solid waste disposal facilities or landfills in a particular state)	00
PADS (Identifies generators, transporters, commercial storers &/or brokers and disposers of PCBs)	00
NPL Liens (USEPA has authority to file liens against real property)	00
ROD (Documents that mandate a permanent remedy at a Superfund site containing technical & health info.)	00
CONSENT (Major legal settlement that establish responsibility and standards for cleanup at NPL sites)	00
Coal Gas (Former manufactured gas sites)	00

*Sites may be listed in more than one database

Ten sites were unmapped (orphan sites) due to poor or inadequate address information and were not considered in the previous list. However, none of these sites (from the street names) appear to be located within the immediate vicinity of the Firestone Steel Area.

Of the 31 listed sites plotted on the EDR Radius Map Report (Appendix A), 15 sites are located within the study area boundary. The remaining 16 sites are located approximately within a one mile on-shore radius of the study area boundary. Of the 15 sites located within the study area boundary, ten are located upstream of the Firestone Steel Area, while the remaining five are located downstream. Seven of these sites are either single spill events, a nonclassifiable establishment planned for cleanup, or are UST/LUST related, all of which have been eliminated from our PRP search. This leaves four locations that are large-quantity generators and four locations that are small-quantity generators, with six of the eight locations having active water discharge permits. The two locations that do not have active water discharge permits, both of which are small-quantity generators, are Jamison Industries located 3/4 miles upstream and Jones Chemicals Inc. approximately ½ mile downstream of the Firestone Steel Area. No violations were found to exist for either of these two sites. It should also be noted that Jones Chemicals is a conditionally exempt small-quantity generator, meaning they generate less than 100 kg (this is approximately equal to 25 gallons) of hazardous waste per month.

In addition, three gas & oil wells are located within the study area boundary, and four are located just outside the boundary.

3.2 Sanborn Maps

Fire insurance (Sanborn) maps were initially produced for the insurance industry to provide information on the fire risks of buildings and other structures. Fire insurance maps have become a valuable historical resource for persons concerned with evaluating the potential for site contamination based on historical use. Map coverage is most comprehensive in urban core areas and in older suburbs. Map coverage for the Firestone Steel Area is available for the years 1900, 1912, 1929, 1938, 1943, and 1956, but is predominantly limited to the northern 1/3 of the study area boundary with minimal coverage of the Detroit River front. Sanborn maps for the Firestone Steel study area are provided in Appendix B.

Sanborn field surveys conducted in 1900 and 1912 revealed two major industrialized properties along the Detroit River front located in the vicinity of the Firestone Steel Site: Morton Salt Co. and Detroit Ship Building Co. The Michigan Alkali Co. (future site of BASF) is shown on Sanborn maps from 1912 through 1956. Sharples Chemical Inc. (future site of Pennwalt / Elf Atochem) is shown on a Sanborn map from 1943. The remaining Sanborn map coverage is predominately residential housing.

3.3 Historical Air Photographs

Digitally reproduced historical aerial photographs (flown by public and private agencies) were obtained from the Michigan State University Center for Remote Sensing. Air photographs of the site were found for the years 1937, 1957, 1972, and 1994.

Appendix C presents the air photographs in chronological order from 1937 through 1994. Note that the scales of the photos vary; the years 1937 and 1957 are 1 : 20,000, whereas, the years 1972 and 1994 are 1 : 40,000.

An inspection of the historical air photos show dramatic changes in the development along the Michigan mainland (nearshore) area of the Trenton Channel over time. Note that in 1937 the Firestone Steel building was not yet constructed. The southern end of the study area boundary is predominately vacant, and the northern end contains sparse industry. The surrounding area was mostly unoccupied.

By 1957, the Firestone Steel building is present. Note that industrial developed properties are concentrated at the northern end of the study area boundary. This photo also shows industrial development at its peak. The surrounding area underwent rapid expansion in the construction of residential housing.

By 1972, it appears that the industrial corridor along the Detroit River front is beginning to diminish. Residential growth in the surrounding area has stabilized.

By 1994, the Firestone Steel building is the only prominent structure seen along the Detroit River front within the study area boundary. It appears that the previous industrial structures that lined the mainland area of the Trenton Channel have been razed. This photo shows industrial development at its lowest point. Refer to Figure 4 for a depiction of the historic/current land owners adjacent to the Firestone Steel Site.

3.4 Active Water Discharge Permits

Six individual properties, as reported by the EDR search, were listed as a 'facility [that] has an active water discharge permit.' These properties (as listed by EDR) are as follows:

BASF Wyandotte Corp. South Wks
4001 Biddle Ave.
Wyandotte, MI 48192
Permit No. MI0000566

Firestone Tire & Rubber Co Ste
17423 W Jefferson
Wyandotte, MI 48192
Permit No. MI0002348

Pennwalt Corp. / PVS Chemicals
4655 Biddle Ave.
Wyandotte, MI 48192
Permit No. MI0045098

DetroitEdison Co Pennsalt PWR
17165 Jefferson Ave.
Riverview, MI 48192
Permit No. MI0001821

Federal Marine Terminal
18099 W. Jefferson
Riverview, MI 48192
Permit No. MI0039659

Wayne CDC Southg Wyandotte CSO/
Wayne Cnty Flat Rock WWTP/
Wayne Cnty Public Service
797 Central Ave.
Wyandotte, MI 48192
Permit No. MI0036072

Review of MDEQ Surface Water Quality Division records identified one additional property as having a permit to discharge into the Trenton Channel. This property was listed as:

Elf Atochem North America, Inc. Riverview Plant
17168 W. Jefferson Ave.
Riverview, MI 48192
Permit No. MI 0002381

3.5 Municipal Records

SEG contacted the following city offices for historical information regarding known sites of environmental concern:

- City of Riverview: Tax Assessor, Fire Marshal, and Building Dept.
- City of Wyandotte: Tax Assessor, Fire Marshal, and Building & Engineering Dept.
- City of Detroit: Water and Sewerage Department

Results of SEG's file reviews at the above listed City sources provided additional property description and property assessment information (Commercial Building Field Sheets), in addition to noting worthy correspondences (Permits, Notice of Non-Compliance, etc.). Municipal records can be found in Appendix D.

The Fire Marshal from both the Cities of Riverview and Wyandotte report no records are on file for those sites identified by SEG as PRP's.

Several site specific maps were acquired from the City of Riverview, some were general site plans and a few were fairly detailed maps showing outfalls, storm, and sanitary drains (Refer to Figure 4). The following is a list of the maps contained in Appendix D:

- Firestone Steel Proposed Expansion
- Firestone Steel Power House Waste Water System Separation Site, 1976

- Material Processing Inc. (Mortgage Survey), 1993
- Atochem West Plant Underground Pwr. Dist., 1995
- Federal Marine Terminal Proposed Waterfront Development Project, 1979
- Federal Marine Terminal Site Plan (Color)
- Pennsalt Pwr. Plant Site Plan (Detroit Edison), 1976
- Pennsalt Pwr. Plant Wastewater Treatment Facilities, 1976

The Detroit Water and Sewerage Department has no water or sewer facilities in the area of the channel. The City also checked their records and found no information on private discharge outfalls that release into the Trenton Channel.

3.6 SEG Drive-Through

SEG performed a site drive-through of the Firestone Steel study area on November 13, 1998. Video recording equipment was used to document current study area conditions, in addition to performing a visual inspection for signs of past waste disposal activities. The video tape taken of the study area (a total of 17 minutes of filming was recorded with the date and time noted) includes brief audio descriptions.

No evidence of illegal disposal of hazardous substances were visually identified during the site drive-through; however, all of the subject properties were secured/restricted by either fences, guards, and/or surveillance cameras thus limiting access for reconnaissance.

4.0 IDENTIFICATION OF PRP's

SEG has identified the following PRP's based on it's review of existing environmental databases, government records, and MDEQ's analytical data:

Property	Company	Type of Facility
17423 W Jefferson Riverview, MI 48192	Firestone Steel	Industrial Refuse System Large Quantity Generator Pollutants: PCB, Phenol
18099 W Jefferson Riverview, MI 48192	Federal Marine Terminal / BASF Riverview (Landfill)	Industrial Refuse System Small Quantity Generator Pollutants: Mercury, Arsenic, Anthracene Phenols
4001 Biddle Ave. Wyandotte, MI 48192	BASF Southworks	Large Quantity Generator Chemical Alkali / Resin Facility

Property	Company	Type of Facility
4655 Biddle Ave. Wyandotte, MI 48192	Pennwalt / PVS Chemicals	Large Quantity Generator Manufacturers & Distributors of Mineral Acids
17168 W Jefferson Riverview, MI 48192	Pennwalt / Elf Atochem	Chemical Product Manufacturer Large Quantity Generator, TSDF Pollutant: PCB
17165 Jefferson Ave. Riverview, MI 48912	Detroit Edison Co. / Pennsalt Power Plant	Small Quantity Generator
797 Central Ave. Wyandotte, MI 48192	Wyandotte WWTP / Wayne Co. Public Services	Small Quantity Generator

The Firestone Steel Site is a large depositional area that has some of the highest contaminant concentrations of any Trenton Channel Project Site. Rationale for the preceding companies placed on the PRP List is as follows:

Firestone Steel

Firestone Steel is located at 17423 W. Jefferson and is listed on CERCLIS-NFRAP, FINDS, RCRIS-LQG, and SHWS. The CERCLIS-NFRAP list indicates a discovery of potentially hazardous wastes at the site in 1980. In 1983 and 1987, the U.S. EPA conducted preliminary assessments at the site and determined that no further action was necessary. The FINDS list indicates that the facility has an active water discharge permit and is monitored or permitted for air emissions under the Clean Air Act. The RCRIS-LQG list indicates that the site transports, treats, stores, generates, and/or disposes of more than 1,000 kg of hazardous waste per month. The list does not indicate environmental problems associated with the hazardous waste. The SHWS list indicates that the site carries a Site Assessment Model (SAM) Score of 38 and that the main pollutants are PCB and Phenol.

Federal Marine Terminal

Federal Marine Terminal is located at 18099 W. Jefferson (immediately downstream of Firestone Steel) and is listed on CERCLIS-NFRAP, FINDS, RCRIS-SQG, and SHWS. The CERCLIS-NFRAP list indicates a discovery of potentially hazardous wastes at the site in 1979. In 1986 and 1987, the U.S. EPA conducted preliminary assessments at the site and determined that no further action was necessary. The FINDS list indicates that the facility has an active water discharge permit. The RCRIS-SQG list indicates that the site once generated, transported, treated, stored or disposed of small quantities of hazardous waste. The list does not indicate environmental problems associated

with the hazardous waste. The SHWS list indicates that the site carries a SAM Score of 39 (rescored from 568 in 1990) and that the main pollutants are Mercury, Arsenic, and Anthracene Phenols.

According to the MDEQ Results of the Trenton Channel Project Sediment Surveys 1993-1996 report, sediments off the Federal Marine Terminal Site had levels similar to those from the upstream Firestone Steel Site.

BASF Southworks

BASF Southworks is located at 4001 Biddle (immediately upstream of Firestone Steel) and is listed on CERCLIS-NFRAP, FINDS, RCRIS-LQG, and TSCA. The CERCLIS-NFRAP list indicates a discovery of potentially hazardous wastes at the site in 1981. In 1983 and 1990, the U.S. EPA conducted preliminary assessments at the site and determined that no further action was necessary. The FINDS list indicates that the facility has an active water discharge permit an is monitored or permitted for air emissions under the Clean Air Act. The RCRIS-LQG list indicates that the site once generated, transported, treated, stored or disposed of large quantities of hazardous waste. The list does not indicate environmental problems associated with the hazardous waste. TSCA is a U.S. EPA database that identifies manufacturers and importers of chemical substances.

Pennwalt / PVS Chemicals

Pennwalt / PVS Chemicals is located at 4655 Biddle and is listed on FINDS, ERNS, RCRIS-LQG, MLTS, UST, and TSCA. The FINDS list indicates that the facility has an active water discharge permit and is monitored or permitted for air emissions under the Clean Air Act. ERNS indicates that the site is listed on the U.S. EPA's Emergency Response Notification System reporting the site had a release of oil and hazardous substances. The RCRIS-LQG list indicates that the site generates, transports, treats, stores and/or disposes of more than 1,000 kg of hazardous waste per month. The list does not indicate environmental problems associated with the hazardous waste. MLTS indicates that the site is listed on the Nuclear Regulatory Commission's Material Licensing Tracking System reporting the site possess or uses radioactive materials. The UST list indicates nine (9) underground storage tanks. One tank is a cathodically-protected steel, 30,000 gallon tank containing hazardous material, while the remaining eight tanks, ranging in size from 1,000 gallons (Kerosene) to 15,000 gallons (HAZ-75218), are listed as removed. None of the nine USTs are indicated as being LUSTs. TSCA is a U.S. EPA database that identifies manufacturers and importers of chemical substances.

Pennwalt / Elf Atochem

Pennwalt / Elf Atochem is located at 17168 W. Jefferson Ave. and is listed on FINDS, ERNS, RCRIS-LQG, RCRIS-TSDF, CORRACTS, CERCLIS-NFRAP, SHWS, TRIS, AST, LUST, RAATS, and TSCA. The FINDS list indicates that the facility is monitored or permitted for air

emissions under the Clean Air Act and that a civil judicial and administrative enforcement case against the subject property is currently under docket. ERNS indicates that the site is listed on the U.S. EPA's Emergency Response Notification System reporting the site had a release of oil and hazardous substances. The RCRIS-LQG list indicates that the site generates, transports, treats, stores, and/or disposes of more than 1,000 kg of hazardous waste per month. RCRIS-TSDF indicates that the site is a transporter, treatment, storage and/or disposal facility that accepts wastes allowed by their permit or license. The last biennial reporting year was 1995 with three notable wastes and their quantities listed: Waste D006 (cadmium) 35,500 lbs, Waste 007 (chromium) 30,000 lbs, and Waste D009 (mercury) 100,000 lbs. The list indicates nine (9) compliance/ violation records associated with the site. Violations range from TSD and Generator - land ban requirements in 1988 to TSD - financial responsibility requirements and generator - all requirements in 1993. CORRACTS is an U.S. EPA database that identifies hazardous waste handlers. The CERCLIS-NFRAP list indicates a discovery of potentially hazardous wastes at the site in 1979. In 1983, the U.S. EPA conducted a preliminary assessment at the site and has determined that no further action is necessary. The SHWS list indicates that the site carries a SAM Score of 30 and that the main pollutant is PCB. TRIS identifies facilities which release toxic chemicals to the air, water and land in reportable quantities under SARA Title III Section 313. RAATS is a tracking system that contains records based on enforcement actions issued to major violators and includes administration and civil actions brought by the EPA. The site is listed as having a LUST and is currently listed as open. The AST list indicates 80 aboveground storage tanks, but all capacities are unknown. Eleven tanks are listed as removed, while the remaining 69 tanks exist on-site. All contents are listed FL, with the exception of two current tanks listed as LPG. TSCA is a U.S. EPA database that identifies manufacturers and importers of chemical substances.

Detroit Edison Co. / Pennsalt Power Plant

Detroit Edison Co. Pennsalt Power Plant is located at 17165 Jefferson Ave. and is listed on FINDS, RCRIS-SQG, and TSCA. The FINDS list indicates that the facility has an active water discharge permit and that a civil judicial and administrative enforcement case against the subject property is currently under docket. The RCRIS-SQG list indicates that the site transports, treats, stores, generates, and/or disposes of small quantities of hazardous waste. The list does not indicate environmental problems associated with the hazardous waste. TSCA is a U.S. EPA database that identifies manufacturers and importers of chemical substances.

Wyandotte WWTP / Wayne Co. Public Services

Wayne Co. Public Services is located at 797 Central Ave. and is listed on CERCLIS-NFRAP, FINDS, RCRIS-SQG, UST and LUST. The CERCLIS-NFRAP list indicates a discovery of potentially hazardous wastes at the site in 1977. In 1987 and 1990, the U.S. EPA conducted preliminary assessments at the site and determined that no further action was necessary. The FINDS

list indicates that the facility has an active water discharge permit, is monitored or permitted for air emissions under the Clean Air Act, and that a civil judicial and administrative enforcement case against the subject property is currently under docket. The RCRIS-SQG list indicates that the site generates, transports, treats, stores and/or disposes of less than 1,000 kg of hazardous waste per month. The list does not indicate environmental problems associated with the hazardous waste. The UST list indicates two (2) underground storage tanks. One tank is a bare steel, 12,400 gallon tank containing #2 fuel oil, while the other is an epoxy steel, 15,000 gallon tank which contained ferric chloride, with both listed as removed. Neither of these two USTs are indicated as being LUSTs. The site is listed as having a LUST that is currently listed as closed.

5.0 REMEDIAL ASSISTANCE PROGRAMS

Review of state and federal remedial assistance programs for potential participation has resulted in the following:

U.S. EPA Great Lakes National Program Office

Great Lakes National Program Office (GLNPO) will provide funding, technical support, and vessel support to assist contaminated sediment work in priority geographic areas within the Great Lakes. GLNPO's emphasis and ultimate objective is to assist in bringing about remediation of contaminated sediments in these priority areas. Projects could include: bench/pilot studies to support remedial efforts, sediment assessments (chemical, physical, biological) to better map contamination at a site, or other activities supporting sediment remediation. For additional information contact Marc Tuchman ((312) 353-1369).

U.S. EPA MI Areas of Concern and Lakewide Management Plan

Coastal Environmental Management (CEM) funds restore impaired beneficial uses in Areas of Concern and generate local support for continued protection and enhancement of water quality. A local match of 10 percent of the total project budget is required. For additional information regarding CEM funds, contact Office of Water, Region 5 Coordinator Matt Didier ((312) 886-6711).

U.S. EPA National Brownfields Economic Redevelopment Pilots

The Brownfields pilots, which are each funded up to $200,000 over two years, are designed to empower states, cities, towns, counties, U.S. Territories, Indian tribes and other interested parties interested in economic redevelopment to work together to prevent, assess, safely clean-up, and reuse Brownfields. For additional information contact Region 5 Coordinator James Van der Kloot ((312) 353-3161).

U.S. Army Corps of Engineers

The Corps has a number of programs to restore the environment. Some of these programs, authorized under recent Water Resources Development Acts, may be applied at Great Lakes sites, or in conjunction with Remedial Action Plans. These programs are not grants, but are cost-shared support provided to States, local governments, and Indian tribes by the Corps or its contractor for planning, design, and/or construction. For additional information about the Corps environmental programs, contact Jan Miller of the Corps' Great Lakes Regional Office in Chicago ((313) 353-6354).

NOAA Coastal Management Program

The U.S. Department of Commerce, Office of Ocean and Coastal Resource Management, National Oceanic and Atmospheric Administration provides funds to coastal communities and promotes effective coastal management. A match of 50 percent of the total project budget is required by the applicant in cash, donations, and/or in-kind services. For additional information contact David L. Litton of the NOAA Grants Management Division in Maryland ((301) 713-0942 x 122).

Michigan Department of Environmental Quality

Michigan Great Lakes Protection Fund, administered through the Office of the Great Lakes under the authority of Public Act 156 of 1989, provides a source of funding ($500,000- 700,000 annually) for new research and demonstration projects to preserve, enhance, and restore the Great Lakes and component ecosystems. For additional information and application details contact Environmental Specialist Mark Coscarelli ((517) 335-4056).

6.0 TREATMENT OPTIONS, ESTIMATED SEDIMENT VOLUMES, & DREDGING PERMITS

6.1 Treatment Options

Treatment of the Trenton Channel contaminated sediments was investigated and summarized in a Treatability Study Report submitted by SEG to MDEQ in September 1997. The Treatability Study included an initial screening of several technologies and actual bench-scale studies. Five treatment processes from the Study were throughly evaluated: 1) Solid Phase Extraction; 2) Solidification; 3) Plasma Vitrification; 4) Soil and Sediment Washing; and 5) Thermal Desorption / Cement Lock Technology. A summary of the evaluated treatment processes based on effectiveness of removing contaminants of concern can be found in Appendix E. The bench-scale studies indicated that the sediments found at the Firestone Steel Area are treatable and there is a possibility of producing a reusable end product.

The cost of the three treatments that demonstrated to be the most successful from the Marketability Study were estimated at:

Treatment	Unit Operational Cost	Capital Cost
Plasma Vitrification	$84/cy	$ 15,000,000
Soil Washing	$90/cy	$ 3,500,000
Cement Lock	$69/cy	$105,000,000

All three of these processes are able to treat soils from nearby Brownfield sites, which would potentially be a cost savings by eliminating capital costs for soil remediation equipment. By selecting a treatment such as cement lock, capitalization costs of a facility could be spread over other sediment sites in the Trenton Channel. Refer to SEG's Marketability Study (November 1998) for a complete description of the treatment options.

Disposal of the contaminated sediments by digging and hauling to an upland landfill was also considered. Two nearby landfills that would accept non-hazardous river sediments were contacted for a disposal price:

BFI Arbor Hills Landfill
10690 Six Mile Road
Northville, MI 48167
Cost per cubic yard $ 7.00

Waste Management Woodland Meadows RDF
39900 Van Born Road
Canton, MI 48188
Cost per cubic yard $ 9.50

It should be noted that the excavated sediments must pass a paint filter test (be at least 30% solid) to be accepted by either facility. Drying of the sediments will need to be considered.

The cost of excavating, transporting, and disposing (including local fees and taxes) of 61,200 cubic yards and 58,000 cubic yards (estimated volumes) of sediments from the Firestone Steel Area and Downstream of the Firestone Steel Area, respectively, was estimated at $2,622,400 ($22/cy). Note that this cost does not include administrative or dewatering expenses.

6.2 Sediment Volume and Mass Calculations

The U.S. EPA, Office of Water, Region 5, has provided visual components and estimated contaminant volumes for the Firestone Steel Site. In order to determine the volume of contaminated sediment and the mass of contaminants in a particular area of interest, three steps were performed: 1) Extracting data into depth-weighted averages of uniform intervals, 2) Interpolating sediment depth

and contaminant concentration for each interval, and 3) Calculating mass and volume for each interval. A brief summary of each of these steps is described in Appendix F, along with the assumptions that were used.

Contaminant areas were delineated by sediment concentrations for mercury and PCBs. Volume and mass calculations for both of these pollutants were tabulated into select intervals and site totals, as shown on the Volume and Mass Calculations table found within Appendix F. The total volume of mercury-contaminated sediments and total mass of mercury at the Firestone Steel Site were estimated at 15,598 yds^3 and 142 lbs, respectively. Additionally, the total volume of PCB-contaminated sediments and total mass for PCBs were estimated at 20,756 yds^3 and 301 lbs, respectively. Refer to the color Firestone Steel map (in Appendix F) for the lateral extent of contamination.

6.3 Dredging Permits

Review of state and federal environmental permits (required to dredge in the Trenton Channel) resulted in a joint agency Application for Permit.

The Land and Water Management Division (LWMD), Permit Consolidation Unit (PCU), within the MDEQ, has responsibility for a permitting process regulating any construction, dredging, or filling of any part of a lake or streambed, upland channeling, or any structural interference with the flow of the water, under the authority of Part 301, PA 451 of 1994, as amended. For additional information contact Ed Tubbs of the MDEQ - LWMD, PCU in Lansing ((517) 373-1068).

The U.S. Army Corps of Engineers (USACOE) has responsibility for the federal permit program which regulates activities in or affecting navigable waters of the United States, the discharge of dredged or fill material into navigable waters, and the transportation of dredged material for the purpose of dumping it into ocean waters under Section 10 Rivers & Harbors Act 1899, Section 103 Marine Protection, Research & Sanctuaries Act of 1972, and Section 404 of the Clean Water Act. For additional information contact Wally Gauther of the USACOE in the Detroit District Office ((313) 226-6706).

A copy of the Application for Permit (Form PR 2731) from the State of Michigan (MDEQ) and Department of the Army, Corps of Engineers can be found in Appendix G. If the application is made at the (USACOE) Detroit District level, a copy will be furnished to the MDEQ, conversely if the application is submitted to the MDEQ, a copy will be furnished to the Detroit District, and subsequently the content is made a matter of public record through issuance of a public notice.

The U.S. Coast Guard does not regulate dredging, however, they will respond to a public notice. A public notice is the primary method of advising interested public agencies and private parties of the proposed activity and of soliciting comments and information necessary to evaluate the probable impact on the public interest.